

Perinatal Oral Health Update: *Clinical Guidelines & Best Practices*



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Objectives

- Understand effect of maternal oral health on families
- Describe why pregnancy provides opportunity to provide oral health interventions for women
- Learn elements of clinical prevention and treatment guidelines for pregnant women

I am comfortable performing a routine surgical extraction of #30 on a 19 y/o woman with controlled diabetes who is 39 weeks pregnant and Rx'ing Tylenol # 3 for analgesia post-operatively.

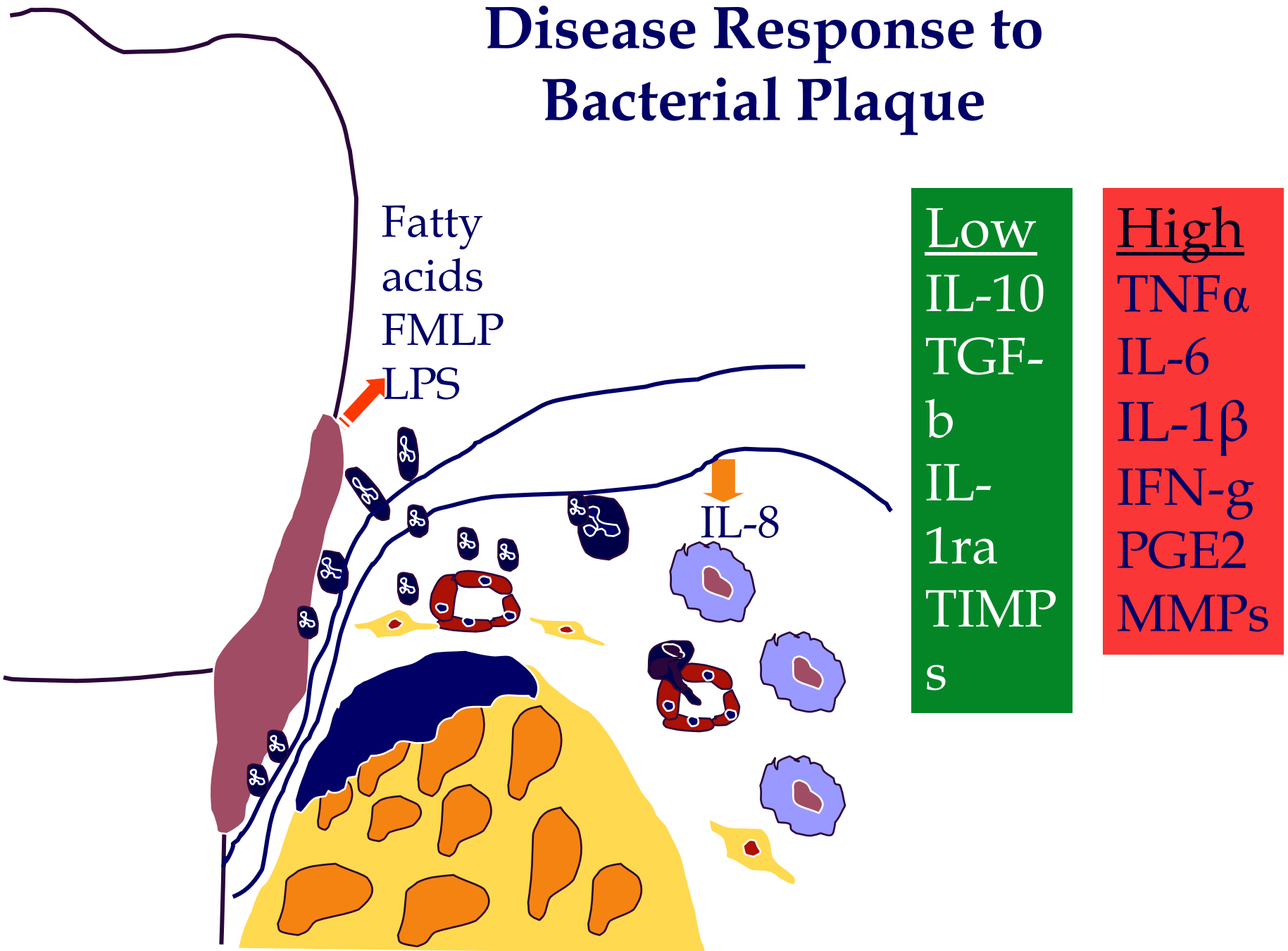
A. No problem

B. I have concerns

Impact of Maternal Oral Health on Families

Periodontitis &
Pregnancy Outcomes

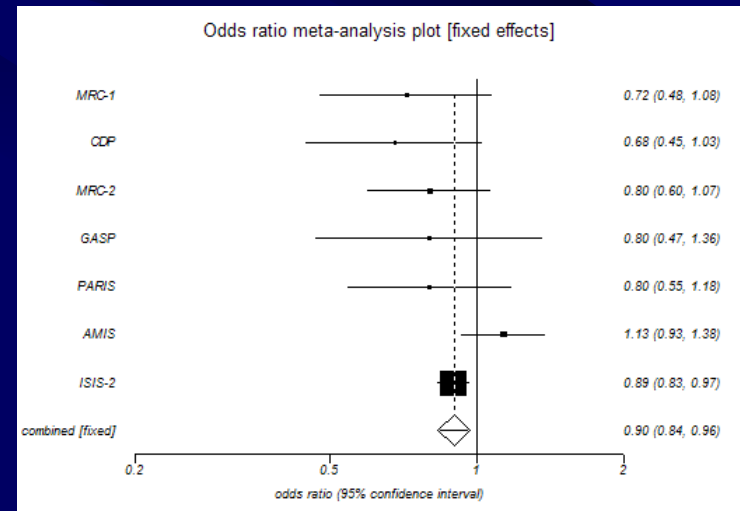
Disease Response to Bacterial Plaque



Meta-Analysis of Associations

(Matevosyan, 2011)

- 125 studies between 1998-2010
- Maternal periodontal disease remains associated with adverse perinatal outcomes (APO)
 - Preclampsia
 - Prematurity



Meta-Analysis of Clinical Intervention Trials

- Journal American Dental Association
 - 2010 Dec 141(12): 1423-1434
- British Medical Journal
 - 2010 Dec 29;341:c7017
- Journal of Clinical Periodontology
 - 2011 Oct 38(10):902-14
- No effect on adverse birth outcomes

Routine Dental Treatment Safe

- Intervention studies show routine dental treatment of periodontitis is **safe** during pregnancy
- Other routine dental care/procedures also safe *(Michalowicz et al, 2008)*

Microbiome- The Latest

- The ecological community of microorganisms that share our body space (*Lederberg and McCray, 2001*)
- Human body is inhabited by at least 10 times more bacteria than the number of human cells



Human Microbiome Project

Use new technology to sample and analyze the genome of microbes from five sites on the human body

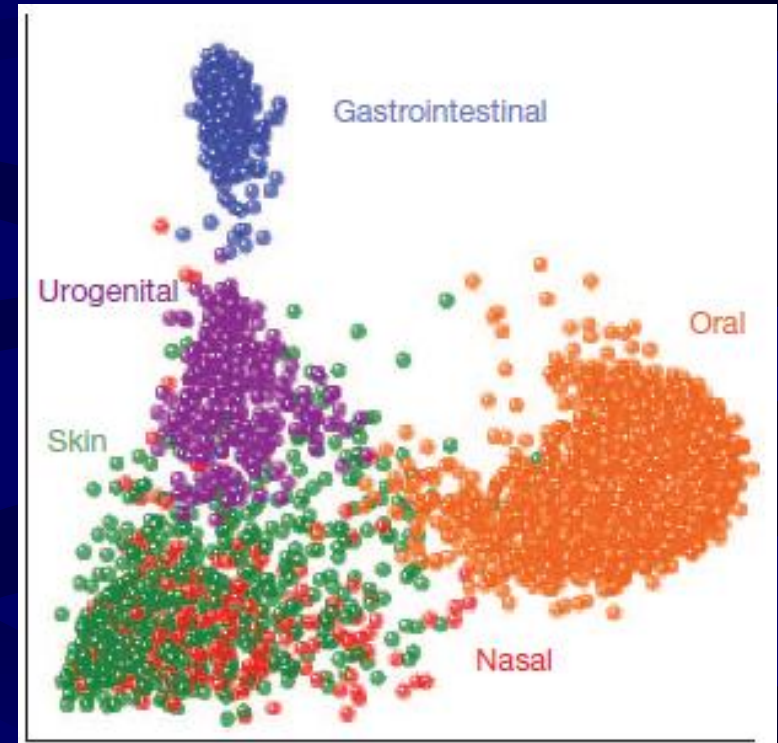
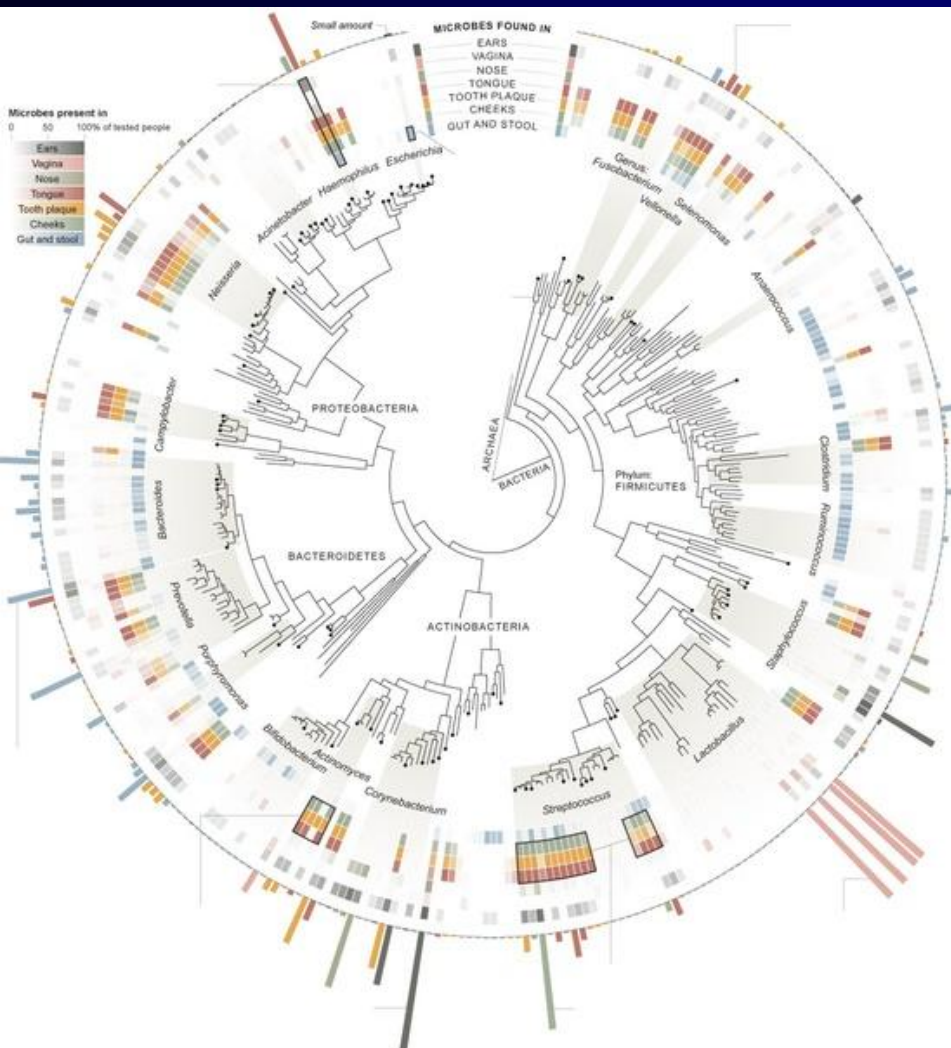
Determine whether there are associations between changes in the microbiome and health/ disease

5 year project



NIH HMP Working Group et al., "The NIH Human Microbiome Project.", Genome Res, 2009 Oct 9;19(12):2317-23

Microbiome Models



The HMP Consortium, *Nature* (2012). The HMP Consortium, *Nature* (2012). Aagaard et al., *PLoS One* (2012). Aagaard et al., *FASEB J* (2012), Riehle et al., *BMC Bioinformatics* (2012), Ganu et al, *Am J Perinatol* (2012), Bader & Ganu et al, in preparation (2013), Ma et al., in review *FASEB* (2013)

Distribution by Body Site

- GI tract (29%)
- Oral (26%)
 - Human oral cavity is estimated to contain more than 750 bacterial species packed in **biofilms** (*Jenkinson and Lamont, 2005; Paster et al., 2006*)
- Skin (21%)
- Nasal (14%)
- Urogenital (9%)

Gram-negative Periodontitis

- *Porphyromonas gingivalis*- AD, APO, RA
- *Fusiform nucleatum*- AD, APO, RA, IBD/CRC
- *Tannerella forsythia*- AD, APO, RA
- *Treponema denticola*- APO,
- *Campylobacter rectus*- APO
- *Prevotella intermedia*- AD, APO, RA
- *Prevotella nigrescens*- APO
- *A. actinomycetemcomitans*- AD

Han YW, Wang X. Mobile microbiome: oral bacteria in extra-oral infections and inflammation. J Dent Res. 2013 Jun;92(6):485-91

Gum Disease Worsens Rheumatoid Arthritis - Healthline

www.healthline.com › Healthline News ▾ Healthline Networks ▾

Sep 17, 2013 - A protein produced by **gum disease** bacteria is to blame for the connection between gum ills and rheumatoid **arthritis**.

Periodontal Disease and Rheumatoid Arthritis - Medscape

www.medscape.com/viewarticle/809134 ▾ Medscape ▾

A number of epidemiologic studies have described associations between rheumatoid **arthritis** and **periodontal disease**. Recent clinical studies continue to ...

Colon Cancer Linked to Mouth Infection, Gum Disease? – ...

www.webmd.com/colorectal-cancer/.../colon-cancer-linked-to-... ▾ WebMD ▾

WEDNESDAY, Aug. 14 (HealthDay News) -- An infection from a common type of mouth bacteria can contribute to **colorectal cancer**, a new study suggests.

Gum Disease-Linked Mouth Bacteria May Cause Colorectal ...



www.medicaldaily.com/gum-disease-linked-mouth-bacteria-ma... ▾

by Nsikan Akpan - in 63 Google+ circles

Aug 14, 2013 - New research connects **gum disease**-causing mouth bacteria to **tumor** growth in the **colon** and reveals a possible drug candidate that may ...

Normal Perinatal Progression

- Normal parturition controlled by inflammatory signaling
- Amniotic fluid levels of prostaglandin and inflammatory cytokines rise until induces rupture of amniotic sac, uterine contraction, dilation and delivery
- Process can be modified by external stimuli-infection and inflammatory stressors

Etiology of Periodontitis

- Toxic products from bacteria in gingival crevice induce immune-system modulated processes that result in destruction of supporting bone
- An **inflammatory** process

Periodontitis & Pregnancy

Mechanisms

- **Direct:** Periodontal bacteria & toxins cross the placental barrier colonize feto-placental unit, trigger infection and/or inflammatory response and pregnancy complications
- **Indirect:** Inflammatory cytokines and mediators produced at gingival level enter blood circulation and reach the feto-placental unit and enhance/stimulate inflammatory response (*Madianos et al, 2013*)

Periodontal Bacteria found in Amniotic Fluid

- *Porphyromonas gingivalis*
- *Fusiform nucleatum*
- *Aggregatibacter actinomycetemcomitans*
- *Bergeyella*
- Periodontal pathogens detected in amniotic/feto-placental tissues of women with normal pregnancies
- What factors determine whether translocation of these pathogens contributes to pregnancy complications?



Impact of Maternal Oral Health on Families

Dental Caries

Strep Mutans Transmission



Mom

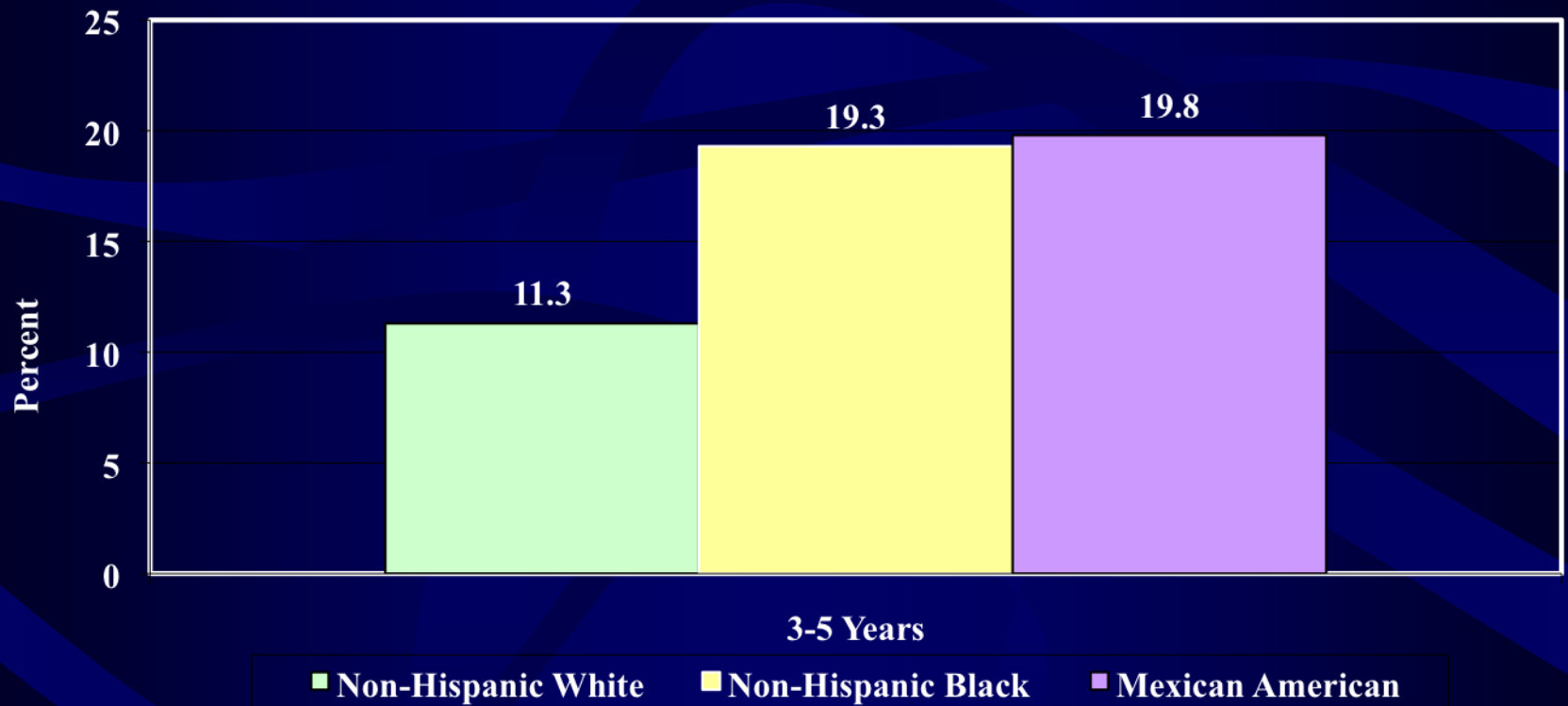


Child



Early Childhood Caries Disparities

% 3-5 y/o Untreated Decay



Maternal Influence

- Diet
- Level of home care
- Importance of primary teeth & oral health
- Genetic & transmissibility components

Pregnancy Presents an Opportunity

- Introduce risk reduction & self management strategies 2 for 1
- Stabilize periodontal & caries status
- Frequent contact with health care delivery system
- Higher interest in health
- May be only time have dental insurance coverage



Clinical Interventions

Need For Guidelines- Dental Providers

- Insufficient training combined with lack of experience treating pregnant women in dental school
- Fear of malpractice suit if something goes wrong with a patient's pregnancy
- Concerns about the safety of procedures

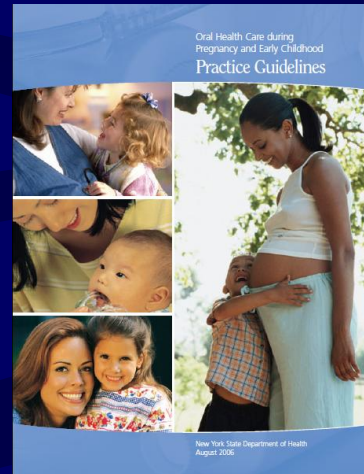
Malpractice Myth

- TDIC- ten states & 17,000 insured dentists
- Reports **one** claim in the past 15 years blaming adverse birth outcome on dental treatment
 - No evidence for claim



Guidelines Everywhere

- New York
- California
- Washington
- South Carolina
- American Academy of Pediatric Dentistry



2012 National Consensus Statement

Oral Health Care During Pregnancy: A National Consensus Statement *Summary of an Expert Workgroup Meeting*



The American College
of Obstetricians and
Gynecologists

ADA

AMERICAN DENTAL ASSOCIATION

U.S. Department of Health and Human Services



HRSA

Health Resources and Services Administration
Maternal and Child Health Bureau



2013 ACOG Committee Opinion

Oral Health Care During Pregnancy and Through the Lifespan *(August 2013)*

“Oral health is an important component of general health and should be maintained during pregnancy...women should be routinely counseled about...the safety and importance of oral health care during pregnancy.”

The background is a dark blue gradient with several lighter blue wavy lines flowing across it. On the right side, there is a small, vertical, metallic-looking cylinder.

Guidance for Prenatal Care Health Professionals

Role of Perinatal Provider

- Ask about and assess oral health
- Facilitate oral health examination by identifying dental provider
- Facilitate treatment by providing written medical clearance when indicated
- Ask if any concerns & address. Inform dental care is safe and effective



San Francisco General Hospital
and Trauma Center

Community Health Network

PRE/ PERINATAL ORAL HEALTH REFERRAL

NAME

DOB

MRN

PCP

Patient ID / Addressograph

Date: _____ Referral to Dental Clinic: ☐ Silver ☐ Chinatown ☐ Potrero ☐ S.E. ☐ SMHC ☐ Native American ☐ UOP

Reason for referral: ☐ Routine ☐ Bleeding gums ☐ Pain ☐ Other: _____

Weeks gestation (at time of referral): _____ Estimated delivery date: _____ Patient Phone # _____

☐ This patient is cleared for routine evaluation and dental care, which may include but not be limited to:

- Dental x-rays as needed for diagnosis (*with abdominal and neck lead shield*)
- Oral health examination
- Dental prophylaxis
- Scaling and root planing
- Restoration of untreated caries
- Extraction
- Standard local anesthetic (*lidocaine with or without epinephrine*)
- Analgesics (if needed): Acetaminophen and/or Acetaminophen with codeine (*Nonsteroidal anti-inflammatory drugs are not recommended during pregnancy.*)
- Antibiotics (if needed and no known allergies): Penicillin, Amoxicillin, Cephalosporin, Clindamycin, Erythromycin-not estolate form (*Cipro and Tetracycline are not recommended during pregnancy*)

Significant Medical Conditions: ☐ NONE
☐ YES, (e.g.,

heart condition, liver disease, kidney disease, etc.)

Known Allergies: ☐ NONE
☐ YES

Drug(s)/Reactions(s): _____

Current Medications: ☐ NONE
☐ Prenatal Vitamins ☐ Iron ☐ Calcium
☐ OTHERS (PCP to attach updated list of active Rx
with referral)

Any Precautions: ☐ NONE
☐ SPECIFY (List if any
comments or instructions): _____

Perinatal Care Provider (PCP)(print name): _____ CHN #: _____

Phone/ pager: _____ PCP Fax #: _____

PCP Clinic: _____

Perinatal Care Provider:

1. Clerk or patient to call **Dental Clinic** for appointment 2. Fax referral form to **Dentist/Dental Clinic**. 3. Give copy of referral form to patient to bring to dentist. 4. Place one copy in patient's chart.

Dental Clinics:

Silver Ave 657-1785 FAX (657-1730 phone) **Chinatown** 291-8794 FAX (364-7636 phone)

Potrero Hill 550-1639 FAX (648-7609 phone) **Southeast** 822-3620 FAX (671-7066 phone)

SMHC 863-0900 FAX (626-2380 phone) **Native American** 621-1429 FAX (621-8056 phone)

UOP 351-7187 FAX (929-6501 phone - initial visit is a "first come/first served" drop-in, at 8 am & 1pm)

Dentist: Please fax back information (to PCP Fax # above) after initial dental visit:

Exam Date: _____ ☐ Normal exam/recall ☐ Missed Appt.

☐ Needs additional treatment visits for: ☐ Caries ☐ Periodontitis ☐ Referral to OMFS/ Oral Surgery

Comments: _____

Role of Dental Provider

- Deliver comprehensive diagnostic, preventive, restorative, and emergency care
- Pregnancy not a reason to defer routine dental care or treatment of problems
- For healthy pregnancies, not necessary to have approval from the prenatal care provider for routine dental care

Pregnancy Gingivitis

- 80% of women
- 2nd-8th mo
- Preexisting gingivitis may predispose to pregnancy gingivitis



Photo: Dr. Robert Johnson, Univ of WA

Pregnancy Granuloma (epulis or pregnancy tumor)



- Occurs in up to 5% of women
- Single tumor-like growth (up to 2 cm) in an area of gingivitis or recurrent irritation (usually maxillary buccal anterior)
- Usually regresses spontaneously after delivery

Gastrointestinal: Impact on Oral Health

- At risk for acid-induced tooth erosion secondary to vomiting
- Diet may increase in refined carbohydrates, increasing risk for caries



Photo: Dr. Bea Gandera, Univ of WA

Consult Indicated

- Co-morbidities that may affect management- diabetes, pulmonary issues, heart or valvular disease, hypertension, bleeding disorders, or heparin-treated thrombophilia
- Nitrous oxide, IV sedation or general anesthesia needed for dental treatment

Dentist's Concerns for Surgical Intervention/treatment

- X-rays
- Local anesthesia
- Medications
- Restorative materials
- Nitrous oxide
- Perception of patient discomfort

Adverse Pregnancy Outcomes

- Risk of pregnancy loss before 20 weeks-15-25%. Most are not preventable.
- Risk of teratogenecity-up to 10 weeks. Rate of malformations-3 to 4%.

Is it Safe to Take X-rays?

- “No single diagnostic procedure results in a radiation dose significant enough to threaten the well-being of the developing embryo and fetus.”
- American College of Radiology

X-rays

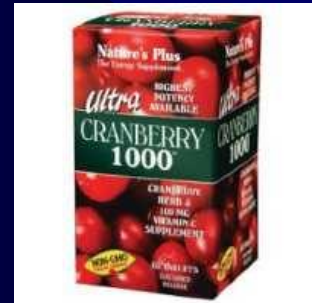
- Use abdominal and thyroid shields
- ADA Guidelines-Number needed for complete clinical diagnosis (**same as non-pregnant**)
- *Image Gently®*
- Standard of care

Drugs in Pregnancy- Physiological Considerations

- Changes in pulmonary, gastrointestinal and peripheral blood flow can alter drug absorption
- Hepatic changes can alter biotransformation of drugs by the liver and clearance
- Benefits vs. Risks
- “Old standbys” with long track records

Drugs in Pregnancy

- Study of W. VA pregnant women (*Glover et al. 2003*)
 - Average 1.14 prescription drugs, excluding vitamins and iron
 - Average of 2.95 over-the-counter drugs
 - Tylenol, Tums, cough drops
 - Nearly half (45%) used herbal agents
 - Peppermint, cranberry



FDA Classification

A - controlled studies in humans have demonstrated no fetal risks

- very few such drugs - prenatal vitamins

B - animal studies indicate no fetal risks but no human studies OR adverse effects in animals but no well controlled human studies

- PCN, cephalosporins, metronidazole, lidocaine, acetaminophen, CHX

FDA Classification

C - no adequate studies either human or animal
OR adverse fetal effects in animals but no human data

- codeine, morphine, meperidine, beta blockers, heparin, acyclovir, indomethicin, naproxen

D – evidence fetal risk but benefits outweigh risk

- phenobarbital, phenytoin, valproic acid, lithium

X - proven fetal risk too great

- isotretinoin and thalidomide

Local Anesthesia

- Standard lido w/ epi- Category B
- Articaine & mepivacaine- Category C
- Default to “old standbys”



R05017

Drugs in Pregnancy-Avoid

- NSAIDS (1st & 3rd)
- Erythromycin estolate
- Tetracycline
- Aspirin (3rd)

Restorative Materials

- Amalgam
 - No evidence harmful effect in population studies and reviews (*FDA 2009, CDC, NCI*)
 - No additional risk if standard safe amalgam practices are used
- Resins
 - Short-term exposure associated with placement has not been shown to have health risk; data lacking on effects of long-term exposures

Patient Comfort

- Head higher than feet
- Upper arch treatment early in pregnancy before lower arch
- Morning or afternoon appointment preference
- Breaks



Supine Hypotensive Syndrome

Symptoms:

- Sweating
- Nausea
- Weakness
- Sense of lack of air

Signs:

- Drop in blood pressure
- Bradycardia
- Possible loss of consciousness

Postural Considerations

- IVC/aortic impingement by weight of fetus
- 15-20% of pregnancies
- Can start in 2nd but max in 3rd trimester
- Turn on side to restore circulation





Self Management

Fluoride



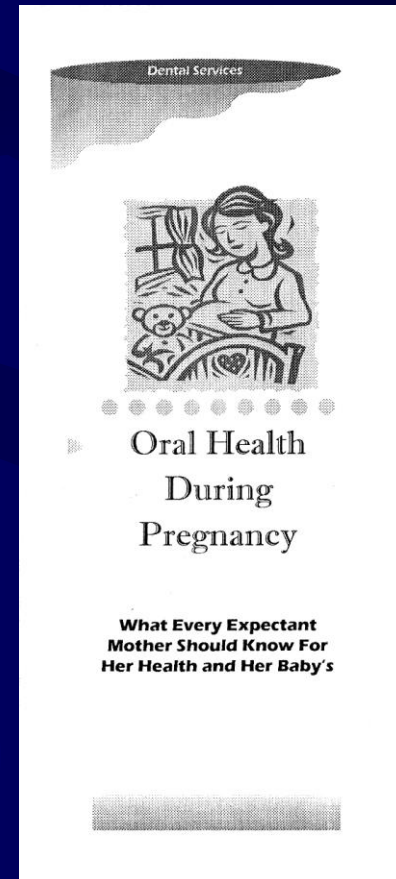
Chlorhexidine

- Suppress *s. mutans* & periodontal pathogens
- Non-alcohol formulation
- Patients rinse prior to appointment
- After birth- 1 week of CHX followed by 3 weeks of OTC FI rinse (*Spolsky et al. CDA Journal 2007*)
- Cost/insurance coverage



Patient Education Materials

- Literacy level
- Cultural appropriateness
- Keep materials brief
- Focus on how Mother's oral health affects baby





COMMUNITY HEALTH NETWORK
SILVER AVENUE
FAMILY HEALTH CENTER

PERINATAL ORAL HEALTH

ACTION PLAN/ SELF MANAGEMENT GOALS

NAME

DOB

MRN

PCP

Patient ID / Addressograph

SELECT TWO GOALS



Quit bad habits



Brush twice a day with
fluoride toothpaste



No soda



Rinse after morning sickness



Less/no candy & junk food



Floss nightly



Complete dental
treatment



Chew Xylitol Gum/mints



Use fluoride
rinse/gel regularly



Take Pre-Natal
Vitamins daily



Eat better



Drink tap water



Conclusion



- Pregnant women are experiencing a normal biological state and ethically deserve the same level of care as any other patient
- Evidence base shows appropriate dental care is necessary and safe

Our Goal

